Amendments to the claims:

The following claims were previously submitted in the Response filed on June 24, 2004 but deemed non-compliant. They are being resubmitted with the necessary corrections. This listing of claims will replace all previous versions and listings of claims in the application.

Listing of Claims

1. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir; and

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode;

wherein the upper portion includes a cover and the lower portion includes a body, the cover being attached to the body with a seal so as to form a substantially liquid tight seal between the cover and the body of the cassette to prevent leakage of buffer during use.

2. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically

connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode; and

an electrophoretic substrate disposed on the substrate support, the substrate including at least two opposed ends, each end extending into one of the liquid reservoirs.

3. (Previously Presented) The cassette according to claim 1, wherein there are four liquid reservoirs formed in the cassette, each reservoir being substantially orthogonal to the adjacent reservoir; wherein there are four electrodes and four contacts, one electrode in each reservoir, each electrode being electrically connected to a separate electrical contact located on an external surface; and wherein there are at least two ports for supplying and removing liquid and at least one port for venting gas, each liquid port providing fluid communication between an associated reservoir or an associated pair of non-adjacent reservoirs and an external surface of the cassette, the vent port(s) providing fluid communication between at least one reservoir and an external surface of the cassette for passage of gas.

4. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode; and

wherein there are at least two ports formed in the upper portion of the cassette, each port extending between a liquid reservoir or pair of non-adjacent liquid reservoirs and an external surface of the cassette and adapted to permit flow of gas between the outside of the cassette and the liquid reservoir or pair of non-adjacent liquid reservoirs; wherein there are at least two ports

formed in the lower portion of the cassette, each port extending between a reservoir or pair of non-adjacent liquid reservoirs and an external surface of the cassette and adapted to permit flow of liquid between the outside of the cassette and the liquid reservoir or pair of non-adjacent liquid reservoirs; and wherein there are at least two electrical contacts formed on the lower portion of the cassette, each contact being electrically connected to the electrodes in a separate liquid reservoir or pair of non-adjacent liquid reservoirs.

5. (Previously Presented) The cassette according to claim 4, wherein the upper portion of the cassette is spaced apart from the substrate support so as to define a substrate reservoir between the liquid reservoirs, which substrate reservoir is adapted to receive fluid; and wherein there is an additional port formed in the upper portion of the cassette which permits passage of fluid into and out of the substrate reservoir.

6. (Previously Presented) The cassette according to claim 5, wherein the additional port formed in the upper portion of the cassette permits flow of gas; and wherein there is a port formed in the substrate support which provides fluid communication between the substrate reservoir and an external surface of the cassette for passage of liquid out of the substrate reservoir.

7. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode; and

wherein at least part of the upper portion of the cassette is movable with respect to the substrate support when the upper portion is engaged with the lower portion of the cassette.

8. (Previously Presented) The cassette according to claim 7, wherein the part of the upper portion of the cassette that is movable is a cover that spans over at least a portion of the substrate support; and wherein the movability of the cover is provided by a resilient member located between a peripheral edge of the cover and an edge of the upper portion of the cassette, the resilient member optionally biasing the cover away from the substrate support.

9. (Previously Presented) The cassette according to claim 7, wherein the entire upper portion of the cassette is movable with respect to the substrate support when the upper portion of the cassette is engaged with the lower portion of the cassette.

10. (Previously Presented) The cassette according to claim 9, wherein the movability is provided by a flexible gasket mounted between the upper portion and the lower portion of the cassette.

11. (Previously Presented) The cassette according to claim 9, wherein the movability is provided by a spring mounted between the upper portion and the lower portion of the cassette.

12. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical

contact and the electrode; and

wherein the liquid reservoirs are formed from at least one gasket located between the upper and lower portions of the cassette, the gasket having two spaced apart cut-outs, each cut-out defining at least a portion of a reservoir.

13. (Original) The cassette according to claim 12, wherein the at least one gasket has a third cut-out located above the substrate support and which cut-out defines a substrate reservoir adapted to receive a fluid.

14. (Previously Presented) The cassette according to claim 12, wherein the at least one gasket is attached to a section of the upper portion of the cassette.

15. (Original) The cassette according to claim 1, further comprising a heat sink attached to the substrate support for providing heat transfer from the substrate support.

16. (Previously Presented) The cassette according to claim 3, wherein the liquid ports and the at least one vent port all extend to one side or the bottom surface of the lower portion of the cassette, and wherein the electrical contacts are located at the same side or bottom surface of the lower portion of the cassette.

17. (Previously Presented) The cassette according to claim 4, wherein the liquid ports and the at least one vent port all extend to one side or the bottom surface of the lower portion of the cassette; and wherein the electrical contacts are located at the same side or bottom surface of the lower portion of the cassette.

18. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode; and

a porous layer disposed on the substrate support and extending into the liquid reservoirs.

19. (Previously Presented) The cassette according to claim 1, wherein the substrate support is removably attached to the lower portion of the cassette.

20. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

at least two liquid reservoirs formed in the cassette spaced apart from one another, each reservoir being adapted to receive a liquid;

a substrate support located between the liquid reservoirs;

at least one port in fluid communication with at least one of the reservoirs and extending to an external surface of the cassette;

at least one electrode located within each liquid reservoir;

at least one electrical contact located on an external surface of the cassette and electrically connected to the at least one electrode so as to permit current to pass between the electrical contact and the electrode; and

wherein a removable attachment permits the substrate support to be slid laterally into the lower portion of the cassette.

21. (Original) A cassette for use in an electrophoresis apparatus, the cassette comprising:

a cover;

a body removably engageable to the cover;

at least two liquid reservoirs formed in the cassette between the cover and the body, the reservoirs being spaced apart from one another and adapted to receive a liquid;

a substrate support located in the body between the liquid reservoirs;

at least two liquid ports formed in the body, each liquid port extending between an associated liquid reservoir or pair of non-adjacent liquid reservoirs and an external surface of the body for channeling liquid between the reservoir or pair of non-adjacent reservoirs and the outside of the cassette;

at least two vent ports formed in the cover, each vent port extending between an associated liquid reservoir or pair of non-adjacent liquid reservoirs and an external surface of the cassette for channeling gas between the reservoir or pair of non-adjacent reservoirs and the outside of the cassette;

at least one electrode located within each liquid reservoir; and

at least one electrical contact located on an external surface of the cassette, the contact being electrically connected to the electrodes so as to permit current to pass between the electrical contact and the electrodes.

22. (Original) The cassette according to claim 21, further comprising an electrophoretic substrate disposed on the substrate support, the substrate including at least two opposed ends, each end extending into one of the liquid reservoirs.

23. (Previously Presented) The cassette according to claim 21, wherein there are four liquid reservoirs formed in the cassette, each reservoir located substantially orthogonal to the adjacent reservoirs, wherein there are at least four liquid ports, vent ports and electrodes, each reservoir including at least one of the liquid ports, one of the vent ports and one of the electrodes, each electrode having an associated electrical contact.

24. (Previously Presented) The cassette according to claim 23, wherein the liquid ports and the vent ports extend to one side or a bottom surface of the body; and wherein the electrical contacts are located at the same side or bottom surface of the body.

25. (Original) The cassette according to claim 21, wherein a portion of the cover extends over and is spaced apart from the substrate support so as to define a substrate reservoir between

the liquid reservoirs, the cassette further comprising a substrate liquid port formed in the body and a substrate vent port formed in the cover, the substrate liquid and vent ports extending between the substrate reservoir and an external surface of the cassette.

26. (Original) The cassette according to claim 25, wherein the liquid ports and the vent ports extend to one side or bottom surface of the body; and wherein the at least one electrical contact is located at the same side or bottom surface of the body.

27. (Original) The cassette according to claim 21, wherein at least a portion of the cover is mounted so as to be moveable with respect to the substrate support when the cover is attached to the body, the mounting optionally biasing the movable portion away from the substrate support.

28. (Original) The cassette according to claim 27, wherein the mounting is a flexible gasket between the movable portion of the cover and the remainder of the cover.

29. (Original) The cassette according to claim 27, wherein the mounting is a spring disposed between the cover and the body.

30. (Original) The cassette according to claim 21, wherein the liquid reservoirs are formed from at least one gasket located between the cover and body, the gasket having two spaced apart cut-outs, each cut-out defining at least a portion of a reservoir.

31. (Original) The cassette according to claim 21, further comprising a heat sink attached to the substrate support for transferring heat from the substrate support.

32. (Original) The cassette according to claim 21, further comprising a porous layer disposed on the substrate support and extending into the reservoirs.

33. (Original) The cassette according to claim 21, wherein the substrate support is

removably attached to the body.

34. (Previously Presented) The cassette according to claim 21, wherein the removable engagement permits the substrate support to be slid laterally into the body.

35. (Previously Presented) A method for performing electrophoresis comprising the steps of:

providing a cassette having a cover and a body, the cassette including first and second liquid reservoirs located between the cover and body and spaced apart from one another by a substrate support, a substrate disposed on the support and having opposed ends located within each liquid reservoir, and electrodes located within each reservoir;

providing an electrophoretic apparatus having a docking station for receiving a cassette, a liquid buffer source, a waste container and a power source;

docking the cassette in the docking station of the apparatus such that the liquid buffer source and the waste container are in fluid communication with the reservoirs, and that the power source is in electrical communication with the electrodes;

placing a sample to be tested onto the substrate;

supplying buffer from the apparatus to the first and second reservoirs to fill the reservoirs to a height above the ends of the substrate located in the reservoirs;

saturating the substrate;

supplying power from the apparatus to the electrodes in the reservoirs to produce separation;

removing power from the electrodes;

channeling the used buffer from the reservoirs to the waste container in the apparatus; and

analyzing the substrate separation.

36. (Previously Presented) A method for performing two dimensional electrophoresis comprising the steps of:

providing a cassette having a cover and a body, the cassette including a pair of spaced apart first dimension liquid reservoirs and a pair of spaced apart second dimension liquid

reservoirs, the reservoir pairs being located between the cover and body and orthogonal to one another, a substrate support disposed between the liquid reservoirs in each pair, a substrate located on the support, the substrate having four sides, one side located within each liquid reservoir, and electrodes located within each reservoir;

providing an electrophoresis apparatus having a docking station for receiving a cassette, at least one liquid buffer source, a waste container and a power source;

docking the cassette in the docking station of the apparatus such that the liquid buffer source and the waste container are in fluid communication with the reservoirs, and that the power source is in electrical communication with the electrodes;

placing a sample to be tested onto the substrate;

supplying a first buffer from the apparatus to the first dimension liquid reservoirs to fill the reservoirs to a height above the ends of the substrate located in the reservoirs;

saturating the substrate with the first buffer;

supplying power from the apparatus to the electrodes in the first dimension liquid reservoirs to produce first dimension separation;

removing power from the electrodes;

channeling the used buffer from the first dimension liquid reservoirs to the waste container in the apparatus;

supplying a second buffer from the apparatus to the second dimension liquid reservoirs to fill the reservoirs to a height above the ends of the substrate located in the reservoirs;

saturating the substrate with the second buffer;

supplying power from the apparatus to the electrodes in the second dimension liquid reservoirs to produce second dimension separation;

removing power from the electrodes;

channeling the used buffer from the second dimension liquid reservoirs to the waste storage in the apparatus; and

analyzing the substrate separation.

37. (Previously Presented) A method for performing electrophoresis comprising the steps of:

providing a cassette having a conveyance system including a substrate support that extends from a first point to a second point, first and second liquid reservoirs located along the conveyance system between the first and second points, the reservoirs being spaced apart from one another, a plurality of substrates spaced apart from one another on the substrate support, each substrate having opposed ends, and electrodes located within each reservoir;

providing a liquid buffer source, a waste container and a power source;

placing a sample to be tested onto each substrate;

supplying buffer from the liquid buffer source to the first and second reservoirs to fill the reservoirs to a first height;

conveying the substrate support;

causing each substrate on the substrate support to pass into the first reservoir below the first height of liquid buffer to saturate the substrate with buffer;

causing the substrate to pass out of the first reservoir;

supplying power to the electrodes in the first and second reservoirs when the substrate is between the first and second reservoirs and while an end of the substrate is still within each reservoir;

removing power from the electrodes;

channeling the used buffer from the reservoirs to the waste container in the apparatus; and

conveying the substrate to a location for post-separation treatment;

analyzing the substrate separation.

38. (Previously Presented) A method for performing two dimensional electrophoresis comprising the steps of:

providing a cassette having a cover and a body, the cassette including a pair of spaced apart liquid reservoirs located between the cover and body, a substrate support disposed between the liquid reservoirs, a substrate located on the support, the substrate having four sides, with two of the four sides being located within the liquid reservoirs, and electrodes located within each reservoir;

providing an electrophoresis apparatus having a docking station for receiving a cassette, at least one liquid buffer source, a waste container and a power source;

docking the cassette in the docking station of the apparatus such that the at least one liquid buffer source and the waste container are in fluid communication with the reservoirs, and that the power source is in electrical communication with the electrodes;

placing a sample to be tested onto the substrate;

supplying a first buffer from the apparatus to the liquid reservoirs to fill the reservoirs to a height above the ends of the substrate located in the reservoirs;

saturating the substrate with the first buffer;

supplying power from the apparatus to the electrodes to produce first dimension separation;

removing power from the electrodes;

disengaging the substrate from the cassette, rotating the substrate 90 degrees and replacing the substrate in the cassette such that the remaining two sides are in the reservoirs;

supplying power from the apparatus to the electrodes to produce second dimension separation;

removing power from the electrodes;

channeling the used buffer from the liquid reservoirs to the waste storage in the apparatus; and

analyzing the substrate separation.

39. (Currently Amended) An electrophoresis apparatus comprising:

a docking station for receiving a cassette;

at least one electrical contact located at the docking station, the electrical contact being electrically connectable to a power source for supplying current to the contact;

at least one buffer source;

a waste storage container;

~~at least one gas source;~~

a liquid manifold including at least one dispenser located at the docking station, a plurality of conduits for conveying liquid from the at least one buffer source to the dispenser and for conveying waste from the docking station to the waste storage container, and at least one valve for controlling flow through the dispenser;

~~a gas manifold including at least one dispenser at the docking station, at least one conduit for conveying gas between the gas source and the dispenser, and at least one valve for controlling flow through the dispenser;~~ and

a controller for controlling operation of the valves.

40. (Previously Presented) An electrophoresis apparatus comprising:

a docking station for receiving a cassette;

at least one electrical contact located at the docking station, the electrical contact being electrically connectable to a power source for supplying current to the contact;

at least one buffer source;

a waste storage container;

a post separation solution source;

at least one gas source;

a liquid manifold including a plurality of dispensers at the docking station, a set of first conduits connected to the at least one buffer source, the waste storage container and the post-separation solution source;

a first valve connected to each first conduit;

a set of second conduits connected to each valve;

a second valve connected to each second conduit;

a set of third conduits, each third conduit connecting a second valve to a dispenser;

a gas manifold including at least one dispenser at the docking station, at least one conduit for conveying gas between the at least one gas source and the dispenser, and at least one valve for controlling flow through the dispenser; and

a controller for controlling operation of the valves.

41. (Original) An electrophoresis apparatus comprising:

at least two liquid reservoirs spaced apart from one another;

a conveyance system for receiving a series of substrates, the conveyance system including a substrate support, the conveyance system adapted to transport the substrate support through at least one liquid reservoir;

at least one electrode located in each liquid reservoir and electrically connectable to a power source for supplying current to the electrode; and

at least one conduit for supplying buffer to at least one of the reservoirs.

42. (Previously Presented) An electrophoresis substrate comprising a substrate for receiving samples on which an electrophoresis analysis is to be performed, and an identification device associated with the substrate for providing information pertaining to an electrophoresis process.

43. (Previously Presented) An electrophoresis substrate having at least four edges and at least one cutout formed completely through the thickness of the substrate.

44. (Previously Presented) An electrophoresis substrate having a plurality of edges and at least one notch formed in at least one edge, the notch extending completely through the thickness of the substrate.

45. (Previously Presented) An electrophoresis substrate for use in a electrophoresis cassette, the electrophoresis substrate comprising:

a substrate; and

a backing including a thermal conductor, the substrate being disposed on the backing,

the combination of the substrate and the backing being movable in combination so as to be insertable into a cassette for subsequent insertion into an electrophoresis apparatus for testing.

46. (Previously Presented) A cassette for use in an electrophoresis apparatus, the cassette having an upper portion and a lower portion, the cassette comprising:

a substrate support located within a substrate chamber;

at least one inlet port in fluid communication with the substrate chamber and extending to an external surface of the cassette;

at least one outlet port in fluid communication with the substrate chamber and extending to an external surface of the cassette;

at least two electrodes located within the cassette, one electrode positioned so as to be within the flow path of a fluid passing through the at least one inlet port, and one electrode positioned so as to within the flow path of a fluid passing out the at least one outlet port; and

at least two electrical contacts located on an external surface of the cassette, each electrical contact being electrically connected to an electrode so as to permit current to pass between the electrical contact and the electrode;

wherein the upper portion includes a cover and the lower portion includes a body, the cover being attached to the body with a seal so as to form a substantially liquid tight seal between the cover and the body of the cassette to prevent leakage of buffer during use.

47. (Currently Amended) A method for performing electrophoresis comprising the steps of:

providing a cassette having an upper portion and a lower portion and a substrate support located within a substrate chamber located between the upper and lower portions, at least one inlet port in fluid communication with the substrate chamber and extending to an external surface of the cassette, at least one outlet port in fluid communication with the substrate chamber and extending to an external surface of the cassette, at least two electrodes located within the cassette, and a substrate disposed on the support;

providing an electrophoretic apparatus having a docking station for receiving a cassette, a liquid buffer source, a waste container and a power source;

docking the cassette in the docking station of the apparatus such that the liquid buffer source is in communication with the at least one inlet and the waste container is in fluid communication with the at least one outlet, and that the power source is in electrical communication with the at least two electrodes;

placing a sample to be tested onto the substrate;

supplying buffer from the apparatus to the cassette;

saturating the substrate;

supplying power from the apparatus to the electrodes to produce separation;

removing power from the electrodes;

channeling the used buffer ~~from the reservoirs~~ to the waste container in the apparatus; and

analyzing the substrate separation.

48. (Currently Amended) A method according to claim ~~35~~ 47, wherein before the step of analyzing the substrate, the method comprises the step of treating the substrate with a dyeing solution to facilitate analysis.

49. (Currently Amended) A method according to claim ~~35~~ 47, wherein before the step of analyzing the substrate, the method comprises the step of removing the substrate from the cassette.

50. (Previously Presented) A method according to claim 35, wherein the step of supplying buffer to the reservoirs involves supplying a first amount of buffer into each reservoir to bring the level of the buffer to a first height within the reservoir; and wherein after the step of saturating the substrate, the method includes the step of removing a portion of the buffer from each reservoir to bring the level of the buffer to a second height within the reservoir.

51. (Previously Presented) A method according to claim 35, wherein the step of supplying buffer to the reservoirs involves channeling buffer through a central port above the substrate and permitting the buffer to flow over the substrate and into the reservoirs.

52. (Previously Presented) A method according to claim 35, wherein the step of supplying buffer to the reservoirs involves channeling buffer from the apparatus into the first and second reservoirs and over the substrate.

53. (Previously Presented) A method according to claim 35, wherein the cassette includes third and fourth buffer reservoirs located between the cover and body and spaced apart from one another by the substrate support, wherein the substrate has lateral sides which are located within the third and fourth buffer reservoirs, and wherein before the step of analyzing the substrate, the method comprises the step of

supplying buffer from the apparatus to the third and fourth reservoirs to fill the reservoirs

to a height above the lateral sides of the substrate located in the reservoirs;

saturating the substrate;

supplying power from the apparatus to the electrodes in the third and fourth reservoirs to produce second dimension separation;

removing power from the electrodes; and

channeling the used buffer from the reservoirs to the waste storage in the apparatus.

54. (Previously Presented) The method according to claim 53, wherein prior to or during the step of supplying power to the third and fourth reservoirs, the method includes the step of removing any buffer that enters the first and second reservoirs.

55. (Previously Presented) A method according to claim 35, wherein after the step of saturating the substrate, the method includes the step of moving at least a portion of the cover toward the substrate to urge buffer located on the top of the substrate to flow into the reservoirs.

56. (Previously Presented) A method according to claim 55, wherein the step of moving at least a portion of the cover involves urging a hinged cover portion toward the substrate.

57. (Previously Presented) A method according to claim 55, wherein the step of moving at least a portion of the cover involves urging the cover down toward the body.

58. (Previously Presented) A method according to claim 35, wherein the cover includes a substrate cover section located above at least a portion of the substrate, the substrate cover being spaced apart from the substrate when the cover is attached to the body, the spacing defining a substrate reservoir above a substantial portion of the substrate, and wherein prior to the step of saturating the substrate, the method comprises the step of supplying buffer to the substrate reservoir.

59. (Previously Presented) A method according to claim 58, wherein after the step of

saturating the substrate and prior to the step of supplying power, the method comprises the step of removing excess buffer from the substrate reservoir.

60. (Currently Amended) A method according to claim ~~35~~ 47, wherein before the step of analyzing the substrate, the method comprises the step of performing post-separation treatment of the substrate to facilitate analysis.

61. (Previously Presented) A method according to claim 60, wherein the step of performing post-separation treatment includes the steps of staining the substrate while in the cassette, and rinsing the substrate.

62. (Previously Presented) A method according to claim 35, wherein the substrate has lateral sides and wherein after the step of removing power from the electrodes the method comprises the steps of

opening the cassette;

rotating the substrate 90 degrees so that its lateral sides are positioned within the first and second reservoirs;

closing the cassette;

supplying power from the apparatus to the electrodes to produce second dimension separation; and

removing power from the electrodes.

63. (Currently Amended) A method according to claim ~~36~~ 47, wherein before the step of analyzing the substrate, the method comprises the step of performing post-separation treatment of the substrate to facilitate analysis.

64. (Previously Presented) A method according to claim 63, wherein step of performing post-separation treatment includes the steps of staining the substrate while in the cassette, and rinsing the substrate.

65. (Previously Presented) A method according to claim 36, wherein the step of supplying a first buffer to the reservoirs involves supplying a first amount of the first buffer into each of the first dimension reservoirs to bring the level of the buffer to a first height within the reservoir; and after the step of saturating the substrate with the first buffer, the method includes the step of removing a portion of the first buffer from each of the first dimension reservoirs to reduce the level of the buffer within each reservoir; and wherein the step of supplying a second buffer to the reservoirs involves supplying a first amount of the second buffer into each of the second dimension reservoirs to bring the level of the buffer to a first height within the reservoir; and after the step of saturating the substrate with the second buffer, the method includes the step of removing a portion of the second buffer from each of the second dimension reservoirs to reduce the level of the buffer within each reservoir.

66. (Previously Presented) A method according to claim 36, wherein the steps of supplying the first and second buffers to the associated reservoirs involves channeling the buffers through a central port above the substrate and permitting the buffers to flow over the substrate and into the reservoirs.

67. (Previously Presented) A method according to claim 36, wherein the step of supplying the first buffer involves channeling the first buffer from the apparatus into the first dimension reservoirs and over the substrate; and wherein the step of supplying the second buffer involves channeling the second buffer from the apparatus into the second dimension reservoirs and over the substrate.

68. (Previously Presented) The method according to claim 36, wherein prior to or during the step of supplying power to the electrodes in the first dimension reservoirs, the method includes the step of removing any buffer in the second dimension reservoirs; and wherein prior to or during the step of supplying power to the electrodes in the second dimension reservoirs, the method includes the step of removing any buffer in the first dimension reservoirs.

69. (Previously Presented) A method according to claim 36, wherein after each of the

steps of saturating the substrate with the first and second buffer, the method includes the step of moving at least a portion of the cover toward the substrate to urge any buffer located on the top of the substrate to flow into the reservoirs.

70. (Previously Presented) A method according to claim 69, wherein the step of moving at least a portion of the cover involves urging a hinged cover portion toward the substrate.

71. (Previously Presented) A method according to claim 69, wherein the step of moving at least a portion of the cover involves urging the cover down toward the body.

72. (Previously Presented) A method according to claim 36, wherein the cover includes a substrate cover section located above at least a portion of the substrate, the substrate cover being spaced apart from the substrate when the cover is attached to the body, the spacing defining a substrate reservoir above a substantial portion of the substrate, and wherein prior to each of the steps of saturating the substrate with first and second buffers, the method comprises the step of supplying a buffer to the substrate reservoir.

73. (Previously Presented) A method according to claim 72, after the steps of saturating the substrate and prior to the steps of supplying power, the method comprises the step of removing excess buffer from the substrate reservoir.

74. (Previously Presented) The apparatus of claim 39, wherein power source is a current supply; wherein there a plurality of electrical contacts located at the docking station; wherein the electrical connection is an electrical manifold which includes two electrical terminals for connection to the current supply, a switch connected to the terminals and the electrical contacts for switching the electrical connection between the contacts; and wherein the controller controls the switching of the switch.

75. (Previously Presented) The apparatus of claim 74, wherein the controller supplies

logic control signals for controlling the switch.

76. (Previously Presented) The apparatus of claim 39, wherein the electrical manifold also includes a diagnostic contact mounted at the docking station; and wherein the controller is adapted to receiving signals from the diagnostic contact for recognizing a cassette in the docking station.

77. (Previously Presented) The apparatus of claim 76, wherein the controller controls the valves to prevent supply of fluid and current from the sources when there is no cassette detected in the docking station.

78. (Previously Presented) The apparatus of claim 39, further comprising a robotic pipette for dispensing samples into a docked cassette; and a storage container for holding samples until dispensed.

79. (Previously Presented) The apparatus of claim 39, further comprising a pressure applicator mounted adjacent to the docking station and adapted to contact a docked cassette for applying pressure to the top of bottom of the cassette to cause at least a portion of the cassette to move relative to the remainder of the cassette.

80. (Currently Amended) The apparatus of claim 39, further comprising a bar code reader ~~located adjacent to the docking station and~~ positioned so as to read indicia formed on a ~~docked~~ cassette, the bar code reader supplying signals to the controller indicative of the indicia on a cassette.

81. (Previously Presented) The apparatus of claim 80, wherein the controller includes a plurality of stored electrophoresis process procedures, the controller selecting an appropriate process procedure based on the supplied signals from the bar code reader.

82. (Previously Presented) The apparatus of claim 39, further comprising an

automated reading and analysis system for analyzing a substrate after separation.

83. (Previously Presented) The apparatus of claim 39, wherein there are a plurality of buffer sources; wherein the liquid manifold includes a plurality of valves for controlling flow from the buffer sources to the dispenser; and wherein controller selectively controls the opening and closing of the valves for controlling flow of liquid from the different buffer sources.

84. (Previously Presented) The apparatus of claim 83, wherein there are a plurality of dispensers; and wherein the controller selectively controls the opening and closing of the valves to control flow of liquid from the different dispensers.

85. (Previously Presented) The apparatus of claim 39, wherein there is a first set of valves and a second set of valves, the opening and closing of each valve in the first and second sets being controlled by the controller so as to control flow through the manifold.

86. (Previously Presented) The apparatus of claim 39, further comprising a wash solution source; and wherein the liquid manifold includes conduits for conveying wash solution from the wash solution source to the at least one dispenser.

87. (Previously Presented) The apparatus of claim 39, further comprising a dyeing solution source; and wherein the liquid manifold includes conduits for conveying dyeing solution from the dyeing solution source to the at least one dispenser.

88. (Currently Amended) The apparatus of claim ~~39~~ 106, wherein there are a plurality of gas sources; wherein the gas manifold includes a plurality of valves for controlling flow between the gas sources and the dispenser; and wherein the controller selectively controls the opening and closing of the valves for controlling flow of gas between the different gas sources and the dispenser.

89. (Previously Presented) The apparatus of claim 88, wherein there are a plurality of

dispensers; and wherein the controller selectively controls the opening and closing of the valves to control flow of gas through the different dispensers.

90. (Previously Presented) The apparatus of claim 88, wherein there is a first set of valves and a second set of valves, the opening and closing of each valve in the first and second sets being controlled by the controller so as to control flow through the manifold.

91. (Previously Presented) The apparatus of claim 88, wherein one of the gas sources is the atmosphere.

92. (Previously Presented) The apparatus of claim 88, wherein one of the gas sources is a pressurized gas source.

93. (Previously Presented) The apparatus of claim 88, wherein one of the gas sources is a depressurization source.

94. (Previously Presented) The apparatus of claim 40, wherein there is a plurality of electrical contacts located at the docking station; wherein the electrical connection is an electrical manifold which includes two electrical terminals for connection to the power source, a switch connected to the terminals and the electrical contacts for switching the electrical connection between the contacts; and wherein the controller controls the switching of the switch.

95. (Previously Presented) The apparatus of claim 40, wherein the electrical manifold also includes a diagnostic contact mounted at the docking station; and wherein the controller is adapted to receiving signals from the diagnostic contact for recognizing a cassette in the docking station.

96. (Previously Presented) The apparatus of claim 95, wherein the controller controls the valves to prevent fluid and current from the sources when there is no cassette detected in the docking station.

97. (Previously Presented) The apparatus of claim 40, further comprising a robotic pipette for dispensing samples into a docked cassette; and a storage container for holding samples until dispensed.

98. (Previously Presented) The apparatus of claim 40, wherein the post-treatment solution source includes a dye solution.

99. (Previously Presented) The apparatus of claim 40, wherein the post-treatment solution source includes a wash solution.

100. (Previously Presented) The apparatus of claim 40, wherein there are a plurality of gas sources; wherein the gas manifold includes a plurality of valves for controlling flow between the gas sources and the dispenser; and wherein the controller selectively controls the opening and closing of the valves for controlling flow of gas between the different gas sources and the dispenser.

101. (Previously Presented) The apparatus of claim 100, wherein there are a plurality of dispensers; and wherein the controller selectively controls the opening and closing of the valves to control flow of gas through the different dispensers.

102. (Previously Presented) The apparatus of claim 100, wherein there is a first set of valves and a second set of valves, the opening and closing of each valve in the first and second sets being controlled by the controller so as to control flow through the manifold.

103. (Previously Presented) The apparatus of claim 100, wherein one of the gas sources is the atmosphere.

104. (Previously Presented) The apparatus of claim 100, wherein one of the gas sources is a pressurized gas source.

105. (Previously Presented) The apparatus of claim 100, wherein one of the gas sources is a depressurization source.

106. (New) An electrophoresis apparatus according to claim 39 further comprising at least one gas source; and a gas manifold including at least one dispenser at the docking station, at least one conduit for conveying gas between the gas source and the dispenser, and at least one valve for controlling flow through the dispenser.

107. (New) A cassette according to claim 1 wherein the seal is an integral portion of either the body or the cover.

108. (New) A cassette according to claim 1 wherein the cover is flexible and wherein the seal is formed by the flexible cover contacting the body.

109. (New) A cassette according to claim 1 wherein the seal is a separate component positioned between the body and the cover.